



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/718,567

11/22/2000

Joseph M. Joy

205962

3107

23460

7590

10/27/2004

LEYDIG VOIT & MAYER, LTD
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6780

EXAMINER

ALI, SYED J

ART UNIT

PAPER NUMBER

2127

DATE MAILED: 10/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/718,567	Applicant(s) JOY ET AL.	
	Examiner Syed J Ali	Art Unit 2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-24, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-24, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). ~
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>Oct. 5, 2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment filed July 26, 2004. Claims 10-24 and 26-27 are presented for examination.
2. The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

Claim Rejections - 35 USC § 102

3. **Claims 10-15, 19-20, and 26-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Howland et al. (USPN 6,018,741) (hereinafter Howland).**
4. As per claim 10, Howland teaches the invention as claimed, including a computer-readable medium having stored thereon a first data structure, the first data structure comprising:
 - a first data field containing data representing code (col. 7 line 50 - col. 9 line 27); and
 - a second data field containing data representing an association of the first data structure with a second data structure (col. 10 line 58 - col. 11 line 26); and
 - a third data field containing data representing a location in source code of a task (col. 7 line 50 - col. 9 line 27).
5. As per claim 11, Howland teaches the invention as claimed, including the first data structure of claim 10 wherein the first data field represents code by pointing to the code (col. 7 line 50 - col. 9 line 27).

6. As per claim 12, Howland teaches the invention as claimed, including the first data structure of claim 10 wherein the second data field represents the association of the first data structure with the second data structure by pointing to the second data structure (col. 10 line 58 - col. 11 line 26).

7. As per claim 13, Howland teaches the invention as claimed, including the first data structure of claim 10 wherein the second data structure is the parent of the first data structure (col. 10 line 58 - col. 11 line 26).

8. As per claim 14, Howland teaches the invention as claimed, including the first data structure of claim 10 wherein the code is code for executing a task (col. 7 line 50 - col. 9 line 27).

9. As per claim 15, Howland teaches the invention as claimed, including the first data structure of claim 14 further comprising:

a fourth data field containing data representing a state of the task (col. 7 line 50 - col. 9 line 27).

10. As per claim 19, Howland teaches the invention as claimed, including the first data structure of claim 14 further comprising:

a fourth data field containing data representing completion code (col. 11 lines 27-47).

Art Unit: 2127

11. As per claim 20, Howland teaches the invention as claimed, including the first data structure of claim 10 wherein the code is deletion code (col. 11 lines 27-47).

12. As per claim 26, Howland teaches the invention as claimed, including the first data structure of claim 10 further comprising:

a third data field containing data representing a resource associated with the first data structure (col. 7 line 50 - col. 9 line 27).

13. As per claim 27, Howland teaches the invention as claimed, including the computer-readable medium of claim 10 further comprising:

the second data structure, wherein the second data structure comprises:

a third data field containing data representing code (col. 7 line 50 - col. 9 line 27); and

a fourth data field containing data representing an association of the second data structure with a third data structure (col. 10 line 58 - col. 11 line 26).

Claim Rejections - 35 USC § 103

14. **Claims 16-18 and 21-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Howland.**

15. As per claim 16, Howland teaches the invention as claimed, including the first data structure of claim 15 wherein the first data structure further comprises:

Art Unit: 2127

a fifth data field containing data representing an association of the first data structure with an object on whose deletion the task is pending (col. 11 lines 27-47).

16. “Official Notice” is taken that although Howland does not specify the state of the task is “pending on object deletion”, the functionality achieved by the cited section of Howland provides the implementation to arrive at the claimed result of “pending on object deletion”.

17. As per claim 17, Howland teaches the invention as claimed, including the first data structure of claim 15 wherein the first data structure further comprises:

a fifth data field containing data representing a second task on whose completion the task is pending (col. 7 line 50 - col. 9 line 27).

18. “Official Notice” is taken that although Howland does not specify the state of the task is “pending on task completion”, the functionality achieved by the cited section of Howland provides the implementation to arrive at the claimed result of “pending on task completion”.

19. As per claim 18, Howland teaches the invention as claimed, including the first data structure of claim 15 wherein the first data structure further comprises:

a fifth data field containing data representing a group on whose de-initialization the task is pending (col. 11 lines 27-47).

20. “Official Notice” is taken that although Howland does not specify the state of the task is “pending on group de-initialization”, the functionality achieved by the cited section of Howland provides the implementation to arrive at the claimed result of “pending on group de-initialization”.

21. As per claims 21-22, "Official Notice" is taken that although Howland does not specifically teach a fourth data field containing data representing an association of the first data structure with a third data structure and that the third data structure is a child of the first data structure, such would have been obvious to one of ordinary skill in the art. Specifically, Howland teaches exclusively of setting pointers such that the child points to the parent, and maintaining relationships in this manner. However, bi-directional pointers are well known and expected in the art, especially within object oriented data structures such as trees. Bi-directional pointers are relatively simple to implement, and allow more flexibility in algorithms for manipulation of trees.

22. **Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howland in view of Katzenberger (USPN 5,970,496).**

23. As per claim 23, Katzenberger teaches the invention as claimed, including the first data structure of claim 10 further comprising:

a third data field containing data representing a reference counter (Claims 10-11).

24. It would have been obvious to one of ordinary skill in the art to combine Howland and Katzenberger since utilizing a processor to check all elements of an array (or tree) to determine if it is a leaf node or if children exist for a node can be computationally intensive, and this workload can be alleviated through use of counters, such that a counter value of zero would indicate that a node is a leaf node.

Art Unit: 2127

25. As per claim 24, Katzenberger teaches the invention as claimed, including the first data structure of claim 23 wherein the reference counter counts a number of child data structures that are associated with the first data structure (Claims 10-11).

Response to Arguments

26. Applicant's arguments filed July 26, 2004 have been fully considered but they are not persuasive.

27. Applicant argues that "*Claim 10, as currently amended, is neither anticipated nor rendered obvious by the art cited in the Office Action. In particular, Howland never discusses this type of reference to a task's source code, a reference very useful for debugging.*"

28. Examiner respectfully disagrees. Howland presents a segment of source code that is executed by each task when it is initialized (col. 7 line 50 - col. 9 line 27). Within this initialization method, each task implements a run method that defines its thread of execution (col. 8 lines 60-67). The run method implemented by each task points to a location where the runnable portion of the task is located (col. 9 lines 10-25).

Conclusion

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2127

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

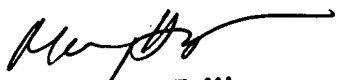
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (571) 272-3769. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Syed Ali
October 20, 2004



MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100